Practice: 647 - Early Successional Habitat Development and Management

Scenario: #1 - Mowing

Scenario Description:

This scenario addresses inadequate habitat for fish and wildlife where setting back succession by mowing incoming woody species will improve habitat for the target species. Mowing can be used to increase structural diversity by creating areas of shorter vegetation prefered by some species or certain life stages of species. The typical setting for this scenario is at the edge of crop fields, in pastures, hayfields, at the edge of woodlands or brushy areas, and in odd areas such as pivot corners. Where chemical control of undesirable vegetation, including invasives, is required to reduce competition for the desired plant community conservation practice 315 herbaceous weed control or 314 brush management should be used. Where the seedbank is inadequate for natural regeneration and seeding is required use conservation practice 550 range seeding or 327 Conservation Cover.

Before Situation:

The site is static or trending to later successional plant community. The disturbance regime to maintain an earlier successional plant community is lacking. Pastures are often monotypic, lacking in diversity. Competition for sunlight from dense grass stands prevents seedling establishment. Stands are often dense and inhibit the movements of young wildlife such as game bird chicks. Area lacks diversity in the height of vegetation.

After Situation:

Early successsional habitat maintained. Mowing has provided more sun light for forb establishment. The heterogeneity of the habitat structure has been increased.

Scenario Feature Measure: Size of treated area

Scenario Unit: Acres

Scenario Typical Size: 10

Scenario Cost: $1,370.66 **Scenario Cost/Unit:** $137.07

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	$42.39	4	$169.56
Mower, Bush Hog	940	Equipment and power unit costs. Labor not included.	Hour	$57.92	10	$579.20
Labor						
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$22.97	10	$229.70
Mobilization						
Mobilization, small equipment	1138	Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds.	Each	$196.10	2	$392.20

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Scenario: #2 - Disking

Scenario Description:

This practice addresses inadequate wildlife habitat for species requiring early successional habitat. This scenario provides early successional habitat by setting back succession and manipulating species composition by disking vegetation and creating bare ground. The typical setting for this scenario is at the edge of crop fields, in pastures, and in odd areas such as pivot corners. This scenario is applicable nationwide. Where the management of woody plants is require to create or maintain early successional habitat conservation practice 314 brush management or 666 forest stand improvement should be used. Where chemical control of weeds, including invasives, is required to reduce competition for the desired plant community conservation practice 315 herbaceous weed control should be used. Where the seedbank is inadequate for natural regeneration and seeding is required, use conservation practice 550 range seeding or 327 Conservation Cover. Where the need is to create early successional habitat within or at the edge of woodland or forest use conservation practice 666 forest stand improvement to remove trees.

Before Situation:

The site is static or trending to higher successional plant species. The disturbance regeme to maintain a lower successional stage is lacking. Pastures are often monotypic, lacking in diversity. Bare ground for seedling establishment is absent. Stands are often dense and inhibit the movements of younger wildlife species suchh as game bird chicks.

After Situation:

The application of this scenario improves wildlife habitat for species requiring early successional plant communities by reducing competition and creating bare ground for the establishment of early successional plants. Additionally, brood rearing habitat is improved both by the resultant food resources and the increased openess of the plant community that allows chicks to negotiate the terrain and exploit those food resources.

Scenario Feature Measure: width and length of treated area

Scenario Unit: Acres

Scenario Typical Size: 2

Scenario Cost: $220.14 **Scenario Cost/Unit:** $110.07

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Tillage, Light	945	Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs.	Acre	$12.02	2	$24.04
Mobilization						
Mobilization, small equipment	1138	Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds.	Each	$196.10	1	$196.10

Practice: 647 - Early Successional Habitat Development and Management

Scenario: #3 - Wildlife opening, heavy density

Scenario Description:

Early successional habitat opening creation: Cuts should occur from September through March to minimize disturbance to nesting birds. Disturbance to roosting Indiana bats must also be considered when timing cuts. A well stocked pole-timber sized northern hardwood stand has the potential to provide optimal food and habitat for numerous life stages of early successional target wildlife. A professional biologist or forester has flagged out the wildlife openings (clear cuts). Cuts should be in blocks and not linear. Where possible, forest wildlife openings will be applied no closer than 300 feet from any edge of the forest area to reduce nest parasitism from brown-headed cowbirds. Location of wildlife openings can be adjusted to avoid steep slopes, streams, wetlands, and other environmentally sensitiveareas. Tree tops can be loped and left in place. Enough slash should be left on-site to provide contiguous cover and habitat for reptiles and amphibians.

Before Situation:

Young forest dominated by pole-sized timber (4 to 10 inches DBH). Early successional shrub habitat is lacking in the forest block. Forest canopy needs to be opened to stimulate shrub growth in the under story.

After Situation:

Minimum 5 acre opening is created. Large mast trees or other species valuable to wildlife may be retained at a rate of 10 to 12 trees per acre. Wildlife habitat is improved with the increase of sunlight to the forest floor. Some slash has been left in the openings to provide cover and habitat for amphibians and reptiles.

Scenario Feature Measure: Size of treated area

Scenario Unit: Acre

Scenario Typical Size: 20

Scenario Cost: $8,895.29 **Scenario Cost/Unit:** $444.76

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Mechanical cutter, chopper	943	Masticator, flail shredder, hydro axe, brush cutter, etc. Equipment and power unit costs. Labor not included.	Hour	$146.44	30	$4,393.20
Brush Chipper, 12" capacity	1869	Brush Chipper, 12" capacity, typically 130 HP. Includes chipper and power unit. Does not include labor.	Hour	$63.22	15	$948.30
Labor						
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12”, Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$22.97	15	$344.55
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12”, Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	$28.85	30	$865.50
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	$41.91	20	$838.20
Mobilization						
Mobilization, small equipment	1138	Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds.	Each	$196.10	2	$392.20
Mobilization, large equipment	1140	Equipment >150HP or typical weights greater than 30,000 pounds or loads requiring over width or over length permits.	Each	$556.67	2	$1,113.34

Practice: 647 - Early Successional Habitat Development and Management

Scenario: #6 - Low Shade Removal

Scenario Description:

The purpose of this treatment is to increase understory light levels to facilitate an increase of desirable seedlings and herbaceous vegetation and prevent excessive competition from undesirable species. Advanced seedling and sapling reproduction is either non-existent or is very small.

All undesirable understory and midstory vegetation should be mechanically and/or chemically killed. Cut stems need not be removed. In addition to herbaceous vegetation and shrubs, suppressed, intermediate, and possibly weak co-dominant trees may be removed at the discretion of the forester to achieve adequate understory light levels. Reduce relative density to 70-80% (density reduction at the discretion of forester), focusing removal on seed source trees of undesirable species. Few, if any, gaps in the main canopy should be created to prevent the germination of undesirable species. Soft mast producing trees can also be retained at the foresters' discretion. Where possible, cuts should not occur from April through October to minimize disturbance to roosting Indiana Bats and nesting birds. Associated Practices: Restoration and Management of Declining and Rare Habitat(643), Upland Wildlife Habitat Management (645), Herbaceous Weed Control (315), Access Control (472), Critical Area Planting (342), Brush Management (314), and Forest Stand Improvement (666).

Before Situation:

Understory and midstory vegetation is comprised of undesirable species of pole-timber, saplings, shrubs, or herbaceous plants that cast dense shade on the forest floor. Understory light levels are too low for the successful establishment of desirable tree seedlings, shrubs, and herbaceous vegetation, which are therefore not abundant or are too small.

After Situation:

A minimum of 10 ac. is treated. Understory light levels are enhanced so that desirable herbaceous vegetation, shrubs, and desirable seedlings have high survival and can increase in root and shoot growth.

Scenario Feature Measure: Size of treated area

Scenario Unit: Acre

Scenario Typical Size: 10

Scenario Cost: $1,326.67 **Scenario Cost/Unit:** $132.67

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Brush Chipper, 6" capacity	938	Brush Chipper, 6" capacity, typically 35 HP. Includes chipper and power unit. Labor not included.	Hour	$25.20	30	$756.00
Chainsaw	937	Equipment and power unit costs. Labor not included.	Hour	$7.18	40	$287.20
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	$42.39	3	$127.17
Materials						
Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	$15.63	10	$156.30

Practice: 647 - Early Successional Habitat Development and Management

Scenario: #7 - Shelterwood Cut

Scenario Description:

The purpose of this treatment is to increase understory light levels so that small advanced reproduction (already present) can grow and will be large enough to compete effectively following overstory removal. This treatment will prepare the stand for an eventual overstory removal which generally occurs within 4-8 years.

All undesirable understory and midstory vegetation should be cut or killed with herbicide. Reduce relative density to 40-60%, depending on the size of the advanced reproduction and desired species (density reduction at the discretion of forester). Removals should be focused on seed source trees of undesirable species, all suppressed and intermediate trees, and some co-dominant trees. Retain trees with large, healthy crowns to produce seed and to moderate the ground-level environment. Where possible, cuts should not occur from April through October to minimize disturbance to roosting Indiana Bats and nesting birds.

Associated Practices: Restoration and Management of Declining and Rare Habitat(643), Upland Wildlife Habitat Management (645), Herbaceous Weed Control (315), Access Control (472), Critical Area Planting (342), Brush Management (314), and Forest Stand Improvement (666).

Before Situation:

Adequate numbers of established advanced reproduction are present, but midstory and overstory shade is limiting its development. Either desirable reproduction is too small, or the likelihood of competition is too great to allow for a final (overstory) removal cut.

After Situation:

Minimum of 10 ac. is treated. Understory light levels are enhanced to promote growth of advanced reproduction to competitive sizes. After implementation of this practice (4-8 years) the stand is ready for an overstory removal.

Scenario Feature Measure: Size of treated area

Scenario Unit: Acre

Scenario Typical Size: 10

Scenario Cost: $4,086.17 **Scenario Cost/Unit:** $408.62

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Chainsaw	937	Equipment and power unit costs. Labor not included.	Hour	$7.18	40	$287.20
Brush Chipper, 12" capacity	1869	Brush Chipper, 12" capacity, typically 130 HP. Includes chipper and power unit. Does not include labor.	Hour	$63.22	20	$1,264.40
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	$42.39	3	$127.17
Labor						
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$32.18	40	$1,287.20
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$20.77	20	$415.40
Materials						
Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	$15.63	20	$312.60
Mobilization						
Mobilization, small equipment	1138	Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds.	Each	$196.10	2	$392.20

Practice: 647 - Early Successional Habitat Development and Management

Scenario: #8 - Overstory Removal

Scenario Description:

The purpose of this practice is to create healthy early successional habitat with adequate herbaceous vegetation, shrubs, and seedling and sapling reproduction. Large advanced reproduction is present and is ready to be released from overstory shade to create young forest habitat. 10-40 square feet of residual basal area (15-20 trees per acre) should be reserved either scattered or in groups. Residual trees should have large, healthy crowns and appear wind-firm. All other stems (anything greater than 1-2 inches in diameter at breast height) should be cut or killed with herbicide. Soft mast producing trees can be retained at the foresters' discretion. If there is not an appropriate number of snags in the stand, large trees may be marked to create snags by girdling. Where possible, cuts should not occur from April through October to minimize disturbance to roosting Indiana Bats and nesting birds.
Associated Practices: Restoration and Management of Declining and Rare Habitat(643), Upland Wildlife Habitat Management (645), Herbaceous Weed Control (315), Access Control (472), Critical Area Planting (342), Brush Management (314), and Forest Stand Improvement (666).

Before Situation:

An adequate number of advanced reproduction (seedlings) is present of adequate size and is ready for complete release from overstory shade. Advanced reproduction is large enough to compete effectively with anticipated competition from other species.

After Situation:

Minimum of 10 ac. is treated. Adequate numbers of desirable seedlings are free to grow. 10-40 square feet of residual basal area is retained for wildlife habitat purposes.

Scenario Feature Measure: Size of treated area

Scenario Unit: Acre

Scenario Typical Size: 10

Scenario Cost: $6,240.98 **Scenario Cost/Unit:** $624.10

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	$42.39	2	$84.78
Chainsaw	937	Equipment and power unit costs. Labor not included.	Hour	$7.18	10	$71.80
Foregone Income						
FI, Corn Irrigated	1960	Irrigated Corn is Primary Crop	Acre	$428.99	10	$4,289.90
Labor						
Specialist Labor	235	Labor requiring a specialized skill set: Includes Agronomists, Foresters, Biologists, etc. to provide additional technical information during the planning and implementation of the practice. Does not include NRCS or TSP services.	Hour	$98.18	15	$1,472.70
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$32.18	10	$321.80